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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PATHAK, SUDHANSHU C

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 08/25/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/751,293

Applicant(s)

ENGWER, DARWIN A.

Examiner

Sudhanshu C. Pathak

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on June 21st, 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6,8,17,26,35,41,49,50,56 and 57 is/are allowed.
- 6) ☒ Claim(s) 1-5,7,9-16,18-25,27-34,36-40,42-48 and 51-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on December 28th, 2000 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-to-57 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 7, 9, 28-34, 36-40, 42-48 & 51-55 are rejected under 35 U.S.C.

103(a) as being unpatentable over Tanaka (5,454,026) in view of IEEE Standard (ISO/IEC 8802-11, ANSI/IEEE Std 802.11; August 20, 1999; Pages 34-58) in further view of Menezes et al. (5,621,894).

Regarding to Claims 1-5, 7, 9, 28-34, 36-40, 42-48 & 51-55, Tanaka discloses a local area networks and particularly a wireless local area network having distributed control and supporting roaming mobile units (MU) (Fig. 1, element 3) in terms of their contact with network access points (AP) (base stations) (Abstract, lines 1-10 & Fig. 1, element 21-23 & Column 1, lines 25-60). Tanaka further discloses the base station to comprise radio zones constituting the service area of the access point (Column 1, lines 30-40). The base station acts as a relay that receives the mobile unit data packets off the air and transmits them on the fixed backbone network and vice versa (Column 1, lines 30-60 & Column 2, lines 10-40). Tanaka also discloses mobile units to include various computing devices for multiple applications comprising a transmitter / receiver as well as suitable hardware to support wireless

communications (Fig. 1 & Fig. 2 & Column 2, lines 10-23, 38-53). Tanaka discloses that the base station transmits various "beacon" signals to initiate communications and transmit various messages to the mobile unit regarding the base station and the network (Column 3, lines 1-35 & Column 4, lines 50-55). Tanaka also discloses the mobile unit performing a certain action based (roaming / handoff) on receiving a test pattern (beacon signal) from the base station and comparing it to an appropriate threshold value (Abstract, lines 1-10 & Column 1, lines 30-55 & Column 2, lines 39-65 & Column 3, lines 40-65 & Column 4, lines 5-50 & Column 5, lines 1-20 & Fig. 2, element 34 & Fig. 3 & Column 5, lines 35-63). However, Tanaka does not disclose the AP (base station) informing multiple MU's or vice versa individual data compression capabilities and optionally compressing data prior to transmitting data to and from the MU or the AP.

IEEE Standard for wireless LAN (802.11) discloses a frame structure for communications between the access points and the mobile units in a wireless LAN networked environment. The standard further discloses the various types of frames used to communicate between the devices to indicate the type of data being communicated including management, control and data frames (Page 35, Sec. 7.1.3 & Page 36, Table 1). The Standard discloses that the management frame further includes a "Capability Information Field" used to contain requested or advertised capabilities (Page 51, Sec. 7.3.1.4), a "Status Code Field" used in response to indicate or failure of a requested operation (Page 54, Sec. 7.3.1.9). The Standard further discloses an "Information Element" field to discloses various capabilities of

the devices such as "Supported Rates", "Frequency hopping" etc. (Page 55, Sec. 7.3.2, Table 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the wireless LAN protocol provides capabilities for messaging and data transfer between the devices in the network for communication purposes and can be implemented in the system as described in Tanaka, furthermore the managing frame can be implemented and transmitted in the beacon transmitted as described in Tanaka to transmit information and status of the respective devices. However, Tanaka in view of the IEEE Standard does not disclose transferring data compression capabilities between the MU and the AP.

Menezes discloses a system and method for exchanging data processing capabilities between multiple computing devices (Abstract, lines 1-24 & Fig. 3, element 104). Menezes discloses exchanging capabilities so as to implement the most efficient data format for the two devices (Abstract, lines 2-5 & Column 9, lines 1-8 & Fig. 4, element 122). Menezes further discloses data processing capabilities to include relating to resolution and data compression (Column 9, lines 5-15 & Column 13, Table 2 & Column 13, lines 18-30, 43-64 & Claim 17). Menezes discloses sending data compression information either as a messaging signal or by sending the compressed data to the device receiving the data (Abstract, lines 5-11 & Column 13, lines 18-67). Therefore, it would have been obvious tone of ordinary skill in the art at the time of the invention that Menezes teaches implementing exchanging data processing information including data compression information between multiple devices between which data is to be exchanged to transfer the

data in a most efficient manner, this can be implemented in the system as disclosed in Tanaka in view of the IEEE Standard wherein the information exchanged in a signaling message can be used to optionally select the optimum data compression scheme, furthermore, the compression scheme implemented can also be disclosed in the data packets header as described in the wireless LAN standard. The data compression instead of hand off can also be implemented by comparing a system parameter to a threshold value as disclosed in Tanaka. Thus, Tanaka in view of the IEEE Standard in further view of Menezes discloses a wireless protocol regarding communication between the AP and the UE wherein transmitting / receiving data compression capabilities of each other, satisfying all the limitations of the claims.

4. Claims 10-13, 16, 19-22 & 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (5,454,026) in view of IEEE Standard (ISO/IEC 8802-11, ANSI/IEEE Std 802.11; August 20, 1999; Pages 34-58) in further view of Menezes et al. (5,621,894) in further view of Boldt (6,182,043).

Regarding to Claims 10 & 19, Tanaka in view of IEEE Standard in further view of Menezes discloses a wireless LAN system comprising access points and mobile units transmitting a WLAN protocol further indicating data compression capabilities to one another and optionally implementing data compression before transmitting as described above. However the above references do not disclose considering one or more factors before implementing data compression wherein the factors being indicative of whether the benefit to be obtained from compressing exceeds the cost associated with implementing compression.

Boldl discloses determining the compression of data on multiple factors wherein the factors being indicative of whether the benefit to be obtained by implementing compression of data exceeds the cost associated with compression (Column 1, lines 25-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Boldl teaches selecting compression bases on a cost / benefit analysis and implementing data compression if the benefit exceeds the cost as defined by the system parameters and algorithm described in the system in Tanaka in view of IEEE Standard in further view of Menezes, thus satisfying the limitations of the claim.

Regarding to Claims 11, 12, 20 & 21, Tanaka in view of IEEE Standard in further view of Menezes in further view of Boldl discloses a wireless LAN system comprising access points and mobile units transmitting a WLAN protocol further indicating data compression capabilities to one another and optionally implementing data compression before transmitting based on a cost/benefit analysis as described above. Menezes further discloses that a first device sends a list of it's data processing capabilities to the second device, which are then examined along with it's own capabilities to determine the most efficient data format for the transfer (Abstract, lines 1-11). Menezes further discloses data compression as an example of data processing capabilities (Column 9, lines 9-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Menezes discloses comparing capabilities of multiple devices before transmitting data, and furthermore, it is obvious that both the devices need to have compatible data

compression capabilities before transmitting compressed data, thus Tanaka in view of IEEE Standard in further view of Menezes in further view of Boldl, satisfies the limitations of the claim.

Regarding to Claims 13 & 22, Tanaka in view of IEEE Standard in further view of Menezes in further view of Boldl discloses a wireless LAN system comprising access points and mobile units transmitting a WLAN protocol further indicating data compression capabilities to one another and optionally implementing data compression before transmitting based on a cost/benefit analysis as described above. Boldl also discloses selecting compression based on the size of the data to be stored or the number of data messages in finite memory source and if the data to be stored is greater than the available memory in the device than data compression mode is implemented (Abstract, lines 1-13 & Column 1, lines 40-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Boldl teaches implementing data compression depending on the size and number of messages to be stored, furthermore this factor, the size of the data, can be implemented in the system as described in Tanaka in view of IEEE Standard in further view of Menezes wherein the size of the data to be transmitted be a factor in selecting data compression on the data transmitted between the UE and the AP, thus satisfying the limitations of the claim.

Regarding to Claims 16 & 25, Tanaka in view of IEEE Standard in further view of Menezes in further view of Boldl discloses a wireless LAN system comprising access points and mobile units transmitting a WLAN protocol further indicating data

compression capabilities to one another and optionally implementing data compression before transmitting based on a cost/benefit analysis as described above. Boldl also discloses selecting the compression of the data and the type of compression (lossy / lossless) based on the priority of the data as selected by the user wherein for a high priority data may not be compressed or compressed at a lower compression ratio while a low priority data may be compressed at a high compression ratio (Column 3, lines 45-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Boldl teaches the selection of data compression based on the type of data, and this can be implemented in the system as described in Tanaka in view of IEEE Standard in further view of Menezes as a factor in evaluating whether the data type is suitable for compression before transmission, thus satisfying the limitation of the claim.

5. Claims 18 & 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (5,454,026) in view of IEEE Standard (ISO/IEC 8802-11, ANSI/IEEE Std 802.11; August 20, 1999; Pages 34-58) in further view of Menezes et al. (5,621,894) in further view of Boldl (6,182,043) in further view of Hwang (6,614,937).

Regarding to Claims 18 & 27, Tanaka in view of IEEE Standard in further view of Menezes in further view of Boldl discloses a wireless LAN system comprising access points and mobile units transmitting a WLAN protocol further indicating data compression capabilities to one another and optionally implementing data compression before transmitting based on a cost/benefit analysis as described

above. However, the above-mentioned references do not disclose implementing the data compression based on the relative computational power of the access points or the mobile units.

Hwang discloses using different compression techniques depending on the computational power of the devices used for implementing the data compression schemes (Column 1, lines 14-31). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Hwang teaches implementing multiple data compression schemes depending on the computational resources of the devices implementing the scheme, and can be implemented in the system as described in Tanaka in view of IEEE Standard in further view of Menezes in further view of Boldl as a factor in evaluating whether the data type is suitable for compression before transmission, thus satisfying the limitation of the claim.

6. Claims 14-15 & 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (5,454,026) in view of IEEE Standard (ISO/IEC 8802-11, ANSI/IEEE Std 802.11; August 20, 1999; Pages 34-58) in further view of Menezes et al. (5621894) in further view of Boldl (6,182,043) in further view of Kanljung et al. (6,438,108).

Regarding to Claims 14-15 & 23-24, Tanaka in view of IEEE Standard in further view of Menezes in further view of Boldl discloses a wireless LAN system comprising access points and mobile units transmitting a WLAN protocol further indicating data compression capabilities to one another and optionally implementing data compression before transmitting based on a cost/benefit analysis as described

above. However, the above-mentioned references do not disclose implementing the data compression based on a factor indicating how much data are waiting in a queue to be transmitted or indicating a relative position of the data to be compressed with respect to the other data in the queue.

Kanljung discloses compressing a plurality of acknowledgement packets, within the acknowledgement queue, into a single packet to be transmitted (Abstract, lines 3-16). Kanljung discloses this solution when the acknowledgement packets are generated faster than they can be transmitted and the acknowledgement queue fills to a maximum size so as to adversely effect the performance of the system i.e. loss of packets or decrease in the data rates, the compression of the acknowledgement packets is performed to maintain the performance of the system (Column 1, lines 65-67 & Column 2, lines 1-67 & Column 3, lines 25-53). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Kanljung teaches using the amount of data waiting in the queue to decide implementing data compression and implementing the algorithm as described in Kanljung in the system as described in Tanaka in view of IEEE Standard in further view of Menezes in further view of Boldl as a factor reduces the loss of data due to queue overflow, thus satisfying the limitations of the claim.

Allowable Subject Matter

7. Claims 6, 8, 17, 26, 35, 41, 49-50 & 56-57 are allowed.

Response to Arguments

8. Applicant's arguments with respect to claims 1-5, 7, 9-16, 18-25, 27-34, 36-40, 42-48 & 51-55 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (703)-305-0341. The examiner can normally be reached on M-F: 9am-6pm.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703)-305-4714.
 - The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
 - Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sudhanshu C. Pathak

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